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New species of *Ctilodes* Murray (Coleoptera: Nitidulidae) from Southeast Asia, with a key to members of the genus

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Abstract. A new species of *Ctilodes* Murray, 1864 (Coleoptera: Nitidulidae) was recovered in material from Vietnam during a large study of Carpophilinae. A description and detailed diagnosis of *Ctilodes clinei* Powell and Duffy **new species** is presented here along with a key to identify all currently known species of *Ctilodes*.

Key Words. Taxonomy, biodiversity.

Introduction

The genus *Ctilodes* was originally established by Murray (1864), with the description of *C. bostrichoides* Murray from Indonesia. The group remained monotypic for almost 120 years until Hisamatsu (1982) added a second species, *C. palawanensis* Hisamatsu, which was collected by banana baited traps set in Palawan Island, Philippines. Additional specimens of this species have since been recovered from the neighboring island, Borneo. Later, Kirejtshuk (1990) described *C. tertius* Kirejtshuk, from Vietnam. Recent fieldwork in Vietnam recovered a new, fourth species of *Ctilodes* that is distinct from the three previously described taxa.

Materials and Methods

Materials studied are deposited in the following institutions:

ARCC – Andrew R. Cline Collection, Sacramento, CA, USA
CSCA – California State Collection of Arthropods, Sacramento, CA, USA
GSPC – Gareth S. Powell Collection, Lafayette, IN, USA
NHM – Natural History Museum, London, England, UK
PERC – Purdue Entomological Research Collection, West Lafayette, IN, USA
USNM – United States National Museum of Natural History, Smithsonian Institution, Washington, DC, USA

Total length and width measurement values are averaged for a number of type specimens, given in parentheses after the measurement. Total length is defined as the distance from the anterior margin of the labrum to the apex of the pygidium, and total width was measured at the widest point across the elytra (across the humeri). Pronotal length was measured at the midline from the anterior to posterior margin, and pronotal width was measured at the widest point across the pronotum.

Specimen label data was reported verbatim with the following conventions: vertical lines (|) were used to designate line breaks, and double vertical lines (| |) to designate different labels. The holotype label was printed on red paper, all paratype labels were printed on yellow paper.

High-resolution dorsal and ventral habitus images were taken using a Leica DFC450 camera mounted onto a Leica M165C stereomicroscope. Montaged habitus images were created using Leica Application Suite version 4.2 software. Male genitalia dissections were completed by relaxing specimens for 48 hours in a chamber exposed to a 20% EtOH/80% water mixture. Desired structures were mounted to the original point using acid-free white glue.

Systematics

Family Nitidulidae Latrielle, 1802
Subfamily Carpophilinae Erichson, 1843
Genus *Ctilodes* Murray, 1864

Ctilodes clinei Powell and Duffy **n. sp.**
(Fig. 1–2)

Specimens Examined. Holotype (Deposited in CSCA), HOLOTYPE: Vietnam: Lam Dong Prov. | Bi Doup Nat. Pk., Giang Ly, | ex: banana/beer bait trap, 6-10.VI.15 | Coll. A. Mudge | | *Ctilodes* | *clinei* | Des. 2017 Powell and Duffy.

Paratypes – 122 additional specimens: 84 with data same as holotype, 38 specimens: Vietnam: Ha Glag Prov. | ~2km SE Meo Vac, 23º8'51.8"N | 105º24'31.9"E, 1237m | 20-21-May-2009, A. Mudge | | Ex. banana/beer traps, ripe jack | fruit, in mixed agric. scrub env. | | *Ctilodes* | *clinei* | Des. 2017 Powell and Duffy.

Paratypes deposited in the following institutions: 24 specimens (ARCC), 10 specimens (CSCA), 70 specimens (GSPC), 6 specimens (NMH), 6 specimens (PERC), 6 specimens (USNM).

Description. Overall, body parallel-sided, moderately convex dorsally. Length 4.9 mm (4.7–5.2) (n = 10), width 1.8 mm (1.7–2.1) (n = 10). Color black to dark brown, occasionally light brown, elytra often light brown to testaceous (Fig 1a). Ventral body surface reddish brown (Fig 1b). Surface sculpturing on dorsal body surfaces moderately shining; fine pubescence golden brown.

Head broad, narrows behind eyes, finely punctured. Punctures uniform in size, becoming sparser approaching base. Frontoclypeal region large, with apex markedly trilobed (Fig 1c). Mandible large, toothed, darkening toward internal margin. Palp simple, reaching about 2/3 length of the mandibles. Two small transverse depressions behind frontoclypeal region. Eyes small, finely faceted, inter-ocular distance about 4 times the largest diameter of the eye. Antenna barely longer than head; segment 1 curved, as long as segments 2 and 3, segments 2–8 expanding apically, with each apical expansion conspicuously lighter in coloration, segments 2 and 3 about equal in length, segments 4–8 each about ½ length of segment 2, segments 9–11 forming strong, compact club, slightly longer than wide.

Pronotum 1.25 times as wide as long, sides parallel, anterior angles rounded while posterior angles obtuse and broadly rounded. Posterior margin with well-developed marginal line, particularly at middle. Disc convex, moderately shining, evenly punctured except at base. Scutellum feebly pentagonal, broadly rounded. Anterior finely granulate, gradually becoming glabrous.

Elytra about as wide as pronotum, also as wide as long at longest point. Humeri well-developed. Elytral anterior angles almost at right angles, sides mildly arcuate, posterior angles broad and obtuse, elytral apices retreating to midline. Two abdominal tergites dorsally visible, goldish-brown setae denser than on rest of dorsum.

Venter overall lighter, submentum transverse, antennal grooves well-developed. Prosternum glabrous, process slightly convex in lateral profile, apically subtruncate, slightly rounded. Mesoventrite finely punctured. Metaventrite darker and setose, finely punctate throughout. Abdominal ventrites 1–3 finely, sparsely punctate, ventrites 4 and 5 granulate, more densely pubescent. Pygidium rounded with distinct, evenly spaced punctures.

Legs somewhat short, femora robust, covered with fine golden pubescence. Tibiae expanded apically, with 4–8 apical tibial spurs.

Male genitalia (Fig. 2), well sclerotized, in dorsal view lateral lobes curved forming ovate opening; in lateral view, lobes mildly curved to sharp point, long sparse setae at apex. Ventrite 8 with acute anterior angles of outer margins that protrude past the median lobe of ventrite.

Variation. In addition to the size variation summarized above, coloration varies from dark brown, almost black to light reddish-brown.

Geographical Distribution. The type series is known from only two provinces of Vietnam.

Biology. All specimens studied were captured using generalist fruit/beer baits. This species is likely an opportunistic feeder of fermenting sugars.

Etymology. The specific epithet honors our friend and colleague Dr. Andrew Cline who provided much of the type series to the authors and who is widely known and respected as a leader in Nitidulidae systematics.

Diagnosis. *Ctilodes clinei* is much smaller in size than *C. bostrichoides* Murray, and differs in the shape of the frontoclypeal region. *Ctilodes palawanensis* Hisamatsu has a distinctive shape of the mandible and male genitalia. Finally, *C. tertius* Kirejtshuk lacks the clypeal shape present in both *C. clinei* and *C. palawanensis*.

Key to species of *Ctilodes*

1. Anterior frontoclypeal region bilobed **2**
— Anterior frontoclypeal region trilobed ..... ***Ctilodes clinei* n. sp.**

2(1). Frontoclypeal region emarginate, forming two rounded lobes ..... ***C. tertius* Kirejtshuk**
— Frontoclypeal region strongly excavate, forming two sharp "teeth" **3**

3(2). Body length greater than 7 mm, pronotum sparsely punctate ..... ***C. bostrichoides* Murray**
— Body length 5.5 mm or less, pronotum densely punctate ..... ***C. palawanensis* Hisamatsu**

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Figure 1. Images of *Ctilodes clinei* n. sp. holotype. **a)** Dorsal habitus. **b)** Ventral habitus. **c)** Frontoclypeal region.

Figure 2. Informative male genitalia structures of *Ctilodes clinei* n. sp. **a)** Lateral lobes. **b)** Eighth sternite and strut.